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U. S. NAVAL HOSPITAL
Mare Island, Vallejo, California

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18 April 1949

DOCUMENTS SECTION

From: Officer in Charge, Artificial Limb Department
To: Medical Officer in Command

Subj: Monthly Report of the Experimental Work of the Artificial Limb Department.

Ref: (a) Advisory Committee on Artificial Limbs ltr dtd 21 June 1948

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1. Monthly report required by reference (a) is hereby submitted.

2. The school for the below-knee and below-elbow prostheses was completed on schedule, and limb fitters were unanimous in their approval. A detailed report has been submitted to the Bureau of Medicine and Surgery, with copies to the various activities.

3. The Research and Development Board, Committee on Medical Sciences inspected the research projects 12 April 1949.

A display has been set up and shipped to Canada for the next meeting of the Advisory Committee on Artificial Limbs.

5. The following projects are under production, experimentation and further study:

(a) Lower Extremities Section:

I. Foot and Ankle

Additional cases are being fitted with functional ankles. Moulds have been ordered to manufacture the sponge rubber fairings. The rubber bumper block is now being manufactured from a mould. A number of changes in the design of the cable ankle joint are being contemplated in order to allow additional rotation as compared to the present model.

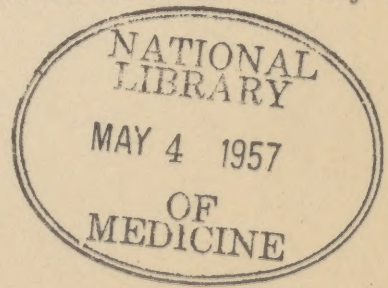
Mr. Catranis visited Mare Island and requested an ankle assembly, which was shipped to him in order to install the rotary plate under the rubber block.

II. Shank.

The dies for the new cosmetic shank are being constructed in the Navy Yard.

III. Knee

(A) Mechanical



A number of amputees are being fitted with the new cosmetic shape knee block with the kneecap incorporated in the shin. The knee joint is designed with a floating knee stop which allows 130° flexion and permits the closed end of the suction socket to be on top of the knee bolt. This is necessary when using a suction socket with a long stump; for example, Gritti Stokes.

(B) Hydraulic

The hydraulic knee lock is being utilized on the tilting table prosthesis, and is working satisfactorily. Additional units are being built to try on additional cases.

IV. Cosmetic Problem.

Rubbertex 1/8" thick has been substituted for the 1/4" Spectrafoam for the cosmetic covering of the artificial leg. The Rubbertex is coated with pigmented latex in order to match the color of the skin.

V. Brief summary of status of models as a unit.

The reinforced hip joint is being utilized on the tilting table prosthesis, thereby doing away with the inside track.

A patient with a below-knee stump, whose amputation was due to Buerger's disease, has been wearing a below-knee suction socket for over eight months. The circulation in the stump has definitely improved, which is apparently due to the beneficial effects of alternating positive and negative pressure in the socket. At the present time the patient's stump has shrunk and a liner has been installed. He now needs a new socket in order to fit the reduced shape of his stump. This case was a new amputation and was set up on a suction socket in his original prosthesis.

(b) Upper Extremities Section:

I. The standard below-elbow arms are being fitted routinely. It includes a suction socket, a short plastic soft socket, functional elbow joint, open biceps cuff, and nylon harness.

II. Hands, Hooks, and Tools.

The Army hand lock and the Robinson hand have both been modified in order to fit them together, and it is hoped to have a model for the Toronto meeting.

III. Cosmetic Problem.

No work has been done on the cosmetic problem of the arm this month.

IV. Harness and/or other outside control.

In the past there have been repeated complaints from arm amputees regarding the harness loop which goes over and under the opposite shoulder. This loop, in spite of being padded, causes irritation and constricts circulation. It often effects the peripheral nerves causing the amputee to have numbness in the good extremity, and there are even cases on record of a temporary paralysis

similar to crutch paralysis. At the present time the shoulder loop is not utilized in the above-elbow prosthesis, but a single strap across the chest has been found satisfactory. A below-elbow case who was having difficulty with the shoulder loop, has been fitted with a single strap around his chest similar to the harness control utilized on the above-elbow prosthesis. This is apparently working satisfactorily, and it is intended to fit additional cases in a similar manner.

The new cable and housing which was received from the Sierra Engineering Company is proving unsatisfactory. The first case broke the cable within two weeks of use, and the second case has broken his cable twice. These were returned to the Sierra Engineering Company with the reports. A third case is still wearing the unit without breakage.

V. Brief summary of status of models as a unit.

A bilateral above-elbow case with stumps similar to Han Schuffenhauer has undergone surgery with the insertion of two pectoralis cineplastic motors. This case at the present time is being fitted with a pair of artificial arms similar to those fitted on the German amputees.

T. J. CANTY
Commander, MC, U.S. Navy